IN THE CLAIMS:

1. (Original) A method for calculating mass scores of calcium deposits, the method comprising:

obtaining patient image data;

identifying calcium plaque in said patient image data, wherein said calcium plaque is associated with a plurality of discrete patient pixel elements and wherein each of said patient pixel elements includes a patient pixel value expressed in Hounsfield units;

converting said patient pixel values into patient density values using a calibration curve equation; and

outputting said patient density values.

2. (Original) The method of claim 1 wherein said obtaining patient image data includes obtaining patient image data using a computed tomography imaging system.

3. (Original) The method of claim 1 further comprising:

summing said patient density values resulting in a total mass score; and

outputting said total mass score.

4. (Original) The method of claim 3 wherein said total mass score includes said patient density values for one vessel within a heart.

5. (Original) The method of claim 3 wherein said total mass score includes said patient density values for all vessels within a heart.

6. (Original) The method of claim 1 wherein said identifying includes:

manually selecting said discrete patient pixel elements containing calcium plaque; and

highlighting said patient pixel elements that meet a preselected threshold criteria and a preselected connectivity criteria.

124320 / GEM-0041

7. (Original) The method of claim 6 wherein said preselected threshold criteria includes patient pixel elements with patient pixel values measuring 130 Hounsfield units or greater.

8. (Original) The method of claim 1 wherein said calibration curve equation is precomputed.

9. (Original) The method of claim 1 further comprising precomputing said calibration curve equation, wherein said precomputing includes:

obtaining phantom image data associated with a plurality of discrete phantom pixel elements corresponding to a calcium insert of known density in a phantom, wherein each of said phantom pixel elements includes a phantom pixel value expressed in Hounsfield units;

graphing said phantom image data against said known density of said calcium insert; and

developing said calibration curve equation for computing said patient density values in response to said patient pixel values.

10. (Original) The method of claim 9 wherein said phantom includes a poly phantom and a calibration phantom.

11. (Original) The method of claim 10 wherein said poly phantom approximates a medium sized patient.

12. (Original) The method of claim 10 wherein said poly phantom approximates a large sized patient.

13. The method of claim 10 wherein said calibration phantom includes three calcium inserts of known density.

14. (Original) The method of claim 13 wherein said calcium inserts of known density are 50, 100 and 200 milligrams per cubic centimeter.

15. (Original) The method of claim 9 wherein said phantom is an anthropomorphic cardiac phantom body including calcium inserts of known density.

3

16. (Original) A method for calculating mass scores of calcium deposits, the method comprising:

creating a calibration curve equation, wherein said creating includes:

obtaining phantom image data associated with a plurality of discrete phantom pixel elements corresponding to a calcium insert of known density in a phantom, wherein each of said phantom pixel elements includes a phantom pixel value expressed in Hounsfield units;

graphing said phantom image data against said known density of said calcium insert; and

developing said calibration curve equation for computing said patient density values in response to patient pixel values;

obtaining patient image data;

identifying calcium plaque in said patient image data, wherein said calcium plaque is associated with a plurality of discrete patient pixel elements and wherein each of said patient pixel elements includes a said patient pixel value expressed in Hounsfield units;

converting said patient pixel values into patient density values using said calibration curve equation; and

outputting said patient density values.

17. (Original) A system for calculating mass scores of calcium deposits, the system comprising:

an imaging system;

an object disposed so as to be communicated with said imaging system, wherein said imaging system generates image data responsive to said object; and

124320 / GEM-0041

a processing device in communication with said imaging system including software to implement the method comprising:

obtaining said image data;

identifying calcium plaque in said image data, wherein said calcium plaque is associated with a plurality of discrete pixel elements and wherein each of said pixel elements includes a pixel value expressed in Hounsfield units;

converting said pixel values into density values using a calibration curve equation; and

outputting said density values.

18. (Original) The system of claim 17 wherein said object is a patient.

19. (Original) The system of claim 17 wherein said imaging system is a computed tomography imaging system.

20. (Original) The system of claim 17 wherein said imaging system and said processing device are physically located in the same geographic location.

21. (Original) The system of claim 17 wherein said imaging system and said processing device are physically located in different geographic locations.

22. (Original) The system of claim 17 wherein said processing device is in communication with said imaging system over a network.

23. (Original) The system of claim 22 wherein said network is the Internet.

24. (Original) A computer program product for calculating mass scores of calcium deposits, the product comprising:

a storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for:

obtaining patient image data;

5

124320 / GEM-0041

identifying calcium plaque in said patient image data, wherein said calcium plaque is associated with a plurality of discrete patient pixel elements and wherein each of said patient pixel elements includes a patient pixel value expressed in Hounsfield units;

converting said patient pixel values into patient density values using a calibration curve equation; and

outputting said patient density values.

25. (Original) A computer program product for calculating mass scores of calcium deposits, the product comprising:

a storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for:

creating a calibration curve equation, wherein said creating includes:

obtaining phantom image data associated with a plurality of discrete phantom pixel elements corresponding to a calcium insert of known density in a phantom, wherein each of said phantom pixel elements includes a phantom pixel value expressed in Hounsfield units;

graphing said phantom image data against said known density of said calcium insert; and

developing said calibration curve equation for computing said patient density values in response to patient pixel values;

obtaining patient image data;

identifying calcium plaque in said patient image data, wherein said calcium plaque is associated with a plurality of discrete patient pixel elements and wherein each of said patient pixel elements includes a said patient pixel value expressed in Hounsfield units;

6

converting said patient pixel values into patient density values using said calibration curve equation; and

outputting said patient density values.

26. (Newly Added)   A method for calculating mass scores of calcium deposits, the method comprising:

obtaining patient image data;

identifying calcium plaque in said patient image data, wherein said calcium plaque is associated with a plurality of discrete patient pixel elements and wherein each of said patient pixel elements includes a patient pixel value expressed in Hounsfield units;

converting said patient pixel values into patient density values using a calibration curve equation, wherein the calibration curve equation is responsive to the size of the patient; and

outputting said patient density values.

27. (Newly Added)   A method for calculating mass scores of calcium deposits, the method comprising:

obtaining patient image data;

identifying calcium plaque in said patient image data, wherein said calcium plaque is associated with a plurality of discrete patient pixel elements and wherein each of said patient pixel elements includes a patient pixel value expressed in Hounsfield units;

converting said patient pixel values into patient density values using a calibration curve equation, wherein the calibration curve is responsive to scan parameters; and

outputting said patient density values.

28. (Newly Added)   A method for calculating mass scores of calcium deposits, the method comprising:

obtaining patient image data;

7

identifying calcium plaque in said patient image data, wherein said calcium plaque is associated with a plurality of discrete patient pixel elements and wherein each of said patient pixel elements includes a patient pixel value expressed in Hounsfield units;

converting said patient pixel values into patient density values using a calibration curve equation, wherein the calibration curve is responsive to CT number drifts due to system aging; and

outputting said patient density values.

124320 / GEM-0041